



CYTHION®

The Premium Grade Malathion

AMERICAN CYANAMID
WAYNE, NEW JERSEY 07470

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MATERIAL SAFETY DATA SHEET

MSDS NO. 0086-04
CAS NO. 000121-75-5
DATE: 11/20/89

EMERGENCY TELEPHONE: (201) 835-3100

PRODUCT IDENTIFICATION

TRADE NAME: CYTHION® ULV Insecticide, The Premium Grade Malathion

SYNONYMS: CYTHION Technical, MALATHION ULV, MALATHION Technical; 0,0-dimethyl phosphorodithioate of diethyl mercaptosuccinate; Butanedioic acid, [(dimethoxyphosphinothioyl)thio], diethyl ester; S-[1,2-bis(ethoxycarbonyl)ethyl]0,0-dimethyl phosphorodithioate

CHEMICAL FAMILY: Organophosphate

MOLECULAR FORMULA: $C_{10}H_{19}O_6PS_2$

MOLECULAR WGT.: 330.36

WARNING STATEMENTS

CAUTION.
KEEP OUT OF REACH OF CHILDREN. HARMFUL BY SWALLOWING, INHALATION, OR SKIN CONTACT.

HAZARDOUS INGREDIENTS

COMPONENT	CAS. NO.	%	TWA/CEILING
Malathion	000121-75-5	91-96	10 mg/m ³ TWA ₈ 5 mg/m ³ TWA ₈

REFERENCE: 10.0 mg/m³: OSHA, ACGIH -1990 (skin)
5.0 mg/m³: OSHA - 1990

PHYSICAL PROPERTIES

APPEARANCE AND ODOR: Clear, brown to colorless liquid; characteristic mercaptan odor

BOILING POINT: 312.8°F 156°C @ 0.7 mm Hg.

MELTING POINT: 37.13°F 2.85°C

VAPOR PRESSURE: 0.00004 mm Hg @ 30°C

SPECIFIC GRAVITY: 1.23 @ 25°C

VAPOR DENSITY: Not Applicable

% VOLATILE (BY VOL.): Negligible

OCTANOL/H₂O PARTITION COEF.: 777

EVAPORATION RATE: Negligible

SATURATION IN AIR (BY VOL.): Not Available

PH: In water it is neutral or slightly acidic. On standing in water it will become more acidic.

SOLUBILITY IN WATER: 145 ppm @ 25°C

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**FIRE AND
EXPLOSION
HAZARD
INFORMATION**

FLASH POINT:	>325°F >162.7°C (METHOD: TAG Open Cup)
FLAMMABLE LIMITS:	Not Applicable
AUTOIGNITION TEMP.:	Not Available
DECOMPOSITION TEMP:	Slow decomposition above 48.8°C (120°F)

FIRE EXTINGUISHING MEDIA:

Use water, foam, carbon dioxide, or dry chemical to extinguish fires.

FIRE CONTROL TACTICS:

Wear self-contained, positive pressure breathing apparatus and full fire fighting protective clothing.

Keep unnecessary people away. Use as little water as possible. Dike area of fire to prevent pesticide run-off. Use spray or fog - solid stream may cause spreading.

Do not decontaminate personnel or equipment, or handle broken packages or containers without protective equipment as specified in the Exposure Control Section. Decontaminate emergency personnel with soap and water before leaving the fire area.

Avoid breathing dusts, vapors and fumes from burning materials. Control run-off water - if water enters a drainage system, advise the authorities downstream.

**NFPA HAZARD
RATING**

(As Recommended By American Cyanamid Co.)		
0 Least	Health	2
1 Slight	Flammability	1
2 Moderate	Reactivity	1
3 High		
4 Severe		

REACTIVITY DATA

Stable @ 25°C	Unstable @ >48.8°C
CONDITIONS TO AVOID:	Storage at 50-115°C leads to non-hazardous decomposition. Heating at >150°C causes rapid decomposition. Reactivity with strong base may generate excessive heat. Unstable @ pH 12.

POLYMERIZATION:	Will not occur
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INCOMPATIBLE MATERIALS:	Strong alkalis and strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS:	Thermal decomposition may produce hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and oxides of carbon, sulfur, and phosphorus.

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**HEALTH HAZARD
INFORMATION****TOXICITY DATA AND
EFFECTS OF
OVEREXPOSURE:**

The oral LD₅₀ for male rats is 2,800 mg/kg and for female rats it is 1,000 mg/kg.

The dermal LD₅₀ for rabbits is 4,100 mg/kg.

This product is considered to be slightly toxic by ingestion in single doses and to be no more than slightly toxic by single skin applications.

This product is not irritating to the rabbit eye but it is slightly irritating to the rabbit skin.

Inhalation exposure is not likely to produce any significant effects due to the low vapor pressure of the product. Overexposure to an aerosol may produce cholinesterase-depression.

CHRONIC TOXICITY: Based on studies conducted by American Cyanamid Company, this product is not mutagenic, teratogenic and carcinogenic in rats, mice and dogs.

Malathion is not listed as a human carcinogen by OSHA, IARC, NTP.

**EMERGENCY & FIRST
AID PROCEDURES:**

If Swallowed: Induce vomiting by giving 2 glasses of water and (a) stimulating back of throat with finger or (b) giving syrup of ipecac 30 ml. Never give anything by mouth or induce vomiting in an unconscious person. Obtain medical care without delay. Give oxygen if person has difficulty breathing. Give artificial respiration if person is not breathing.

If on Skin: Remove contaminated clothing without delay. Wear impervious gloves. Cleanse skin thoroughly with soap and water. Do not omit cleansing hair or under fingernails if contaminated. Obtain medical care without delay. Give oxygen if person has difficulty breathing. Give artificial respiration if person is not breathing.

If in Eyes: Immediately irrigate with plenty of water for 15 minutes.

If Inhaled: Remove from exposure. Administer oxygen if there is difficulty in breathing. Obtain medical care without delay.

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SPECIAL NOTES TO PHYSICIAN: CYTHION inhibits acetylcholinesterase activity. Warning symptoms include weakness, headache, tightness of the chest, blurred vision, nonreactive pinpoint pupils, salivation, sweating, nausea, vomiting, diarrhea, and abdominal cramps. Give atropine intramuscularly or intravenously, depending on severity of poisoning, 2 to 4 mg every 10 minutes until fully atropined as shown by dilated pupils, dry flushed skin, and tachycardia. Twenty to 30 mg or more may be required during the first 24 hours.

Never give opiates or phenothiazine tranquilizers. Clear chest by postural drainage. Allow no further exposure to any cholinesterase inhibitors until cholinesterase regeneration has taken place as determined by a blood test. Pralidoxime chloride (2-PAM; PROTOPAM chloride) may be effective as an adjunct to atropine. Use according to label directions.

**EXPOSURE
CONTROL METHODS**

During manufacturing of this product, please use the following industrial hygiene practices:

Exposure to eyes and skin should be prevented by wearing chemical splash goggles, rubber gloves, apron, and boots. A long-sleeved shirt and full length pants (or coveralls) should also be worn. Wash thoroughly with soap and water after handling.

Administer a blood cholinesterase program at workplace.

A NIOSH approved respirator should be worn where vapor inhalation may occur. Organic vapor cartridges should be used in the respirator and changed periodically.

For end-users, refer to product label for personal protective clothing/equipment.

**SPILL OR LEAK
PROCEDURES**

Wear rubber boots, gloves, and splash goggles. Absorb spilled material with clay or soda ash. Sweep up and place in closed container. Treat contaminated area with full-strength liquid chlorine bleach; let stand for 15 minutes and repeat procedure. Flush area with water.

WASTE DISPOSAL: Dispose in accord with local, state, and federal regulations.

ADDITIONAL REGULATORY INFORMATION**SARA Title III Data****Section 311 & 312 Hazard Categories**Immediate Health Hazard - YDelayed Health Hazard - NFire Hazard - NReactive Hazard - NSudden Pressure Release Hazard - N**Section 302 Extremely Hazardous Substances - None**

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**SPECIAL
PRECAUTIONS****HANDLING AND
STORAGE:**

Because of this material's flash point, areas containing this material should conform to the codes (such as, NFPA 30 and NFPA 70) governing Class III Combustible Liquids.

Do not contaminate water, food, or feed by storage or disposal. Store in a secure, dry, well-ventilated separate room, building or covered area.

Not for use or storage in the home.

Keep away from sources of ignition and protect from exposure to fire and heat.

Segregate from oxidizers and incompatible materials listed in the Reactivity Data Section.

APPENDIX

CYTHION® ULV Insecticide, "The Premium Grade Malathion" is a registered trademark American Cyanamid Company

SOURCE AND SHEET NO.: 0086-04
DATE INFORMATION DATE: 11/20/89

The information and statements herein are believed to be reliable but are not to be construed as a warranty or representation for which we assume legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein. NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS MADE.